

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

- 1-21. (Cancelled)
22. (New) A surface and cordless transducer system, the system comprising:
- a surface, the surface including:
- at least one transmitting coil for radiating an electromagnetic field to a transducer to power the transducer, the at least one transmitting coil having a resonant frequency;
- position resolving grid, the position resolving grid distinct from the at least one transmitting coil, the position resolving grid configured to receive a position signal from the transducer to determine the position of the transducer;
- and wherein the transducer comprises:
- a resonant circuit, the resonant circuit configured to receive the electromagnetic field from the surface and store energy from the received electromagnetic field.
23. (New) The surface and cordless transducer system of claim 22 wherein the position signal is transmitted by the transducer resonant circuit to the position resolving grid.
24. (New) The surface and cordless transducer system of claim 23 wherein the position signal is pulse width encoded to transmit data from the transducer to the surface.

25. (New) The surface and cordless transducer system of claim 22 wherein the transducer comprises a second resonant circuit, and wherein the position signal is transmitted by the second resonant circuit to the position resolving grid.

26. (New) The surface and cordless transducer system of claim 25 wherein the signal transmitted by the second resonant circuit is pulse width encoded to transmit data from the transducer to the surface.

27. (New) The surface and cordless transducer system of claim 25 wherein the second resonant circuit has a different resonant frequency than the resonant circuit.

28. (New) The surface and cordless transducer system of claim 22 wherein the transducer resonant circuit transmits the position signal to the position resolving grid in response to a sync signal transmitted on the at least one transmitting coil.

29. (New) The surface and cordless transducer system of claim 22 wherein the surface further includes a transmission controller, the transmission controller configured to selectively turn on the transmit signal source to provide a pulse width encoded signal for transmitting information to the transducer.

30. (New) The surface and cordless transducer system of claim 29 wherein the transducer further includes control logic, the control logic configured to determine the pulse width encoded signal from the received electromagnetic field and selectively control the transducer in response to the pulse width encoded signal.

31. (New) The surface and cordless transducer system of claim 22 wherein the transducer further includes control logic, and wherein the control logic of the transducer is further configured to vary the length of the position signal from the transducer.

32. (New) The surface and cordless transducer system of claim 22 wherein the at least one transmitting coil comprises a plurality of overlapping coils.

33. (New) The surface and cordless transducer system of claim 22 wherein the transducer has an active condition and a standby condition, and wherein the transducer resonant circuit in the standby condition resonates in response to the electromagnetic field from the surface, and responsive to receipt of a sync signal from the surface, the transducer is put in an active condition to vary the length of the position signal from the transducer.

34. (New) The surface and cordless transducer system of claim 22 wherein the transducer further includes an oscillator that activates a tuned circuit in response to the receipt of a sync signal from the surface to transmit a pulse width encoded electromagnetic signal to the surface.

35. (New) The surface and cordless transducer system of claim 22 wherein the surface further includes transmit signal source, the transmit signal source providing a powering signal to drive the at least one transmitting coil.

36. (New) The surface and cordless transducer system of claim 22 wherein the surface further includes a means for squelching the at least one transmitting coil when the at least one transmitting coils are not transmitting

37. (New) The surface and cordless transducer system of claim 22 wherein the transducer resonant circuit has a resonance frequency different from the resonant frequency of the at least one transmitting coil.

38. (New) The surface and cordless transducer system of claim 22 wherein the transducer further comprises an oscillator, the oscillator configured to drive the resonant circuit with an oscillator signal to generate and transmit the position signal to the surface.

39. (New) The surface and cordless transducer system of claim 38 wherein the oscillator signal has a frequency different from the first resonant frequency.

40. (New) A surface and cordless transducer system, the system comprising:

a surface, the surface including:

at least one transmitting coil for radiating an electromagnetic field to a transducer to power the transducer;

a transmit signal source, the transmit signal source providing a powering signal to drive the at least one transmitting coil;

a transmission controller, the transmission controller configured to selectively turn on the transmit signal source to provide a pulse width encoded signal for transmitting information to the transducer;

position resolving grid, the position resolving grid distinct from the at least one transmitting coil, the position resolving grid configured to receive a position signal from the transducer to determine the position of the transducer;

and wherein the transducer comprises:

a resonant circuit, the resonant circuit configured to receive the electromagnetic field from the surface and store energy from the received electromagnetic field;

control logic, the control logic configured to determine the pulse width encoded signal from the received electromagnetic field and selectively control the transducer in response to the pulse width encoded signal.

41. (New) The surface and cordless transducer system of claim 40 wherein the pulse width encoded signal transmits a command to update a transducer ID to the transducer.

42. (New) The surface and cordless transducer system of claim 40 wherein the pulse width encoded signal transmits a mode select command to the transducer.

43. (New) The surface and cordless transducer system of claim 40 wherein the pulse width encoded signal transmits an enable command to the transducer.

44. (New) The surface and cordless transducer system of claim 40 wherein the pulse width encoded signal transmits a load command to the transducer.

45. (New) The surface and cordless transducer system of claim 40 wherein the pulse width encoded signal transmits an update encryption data command to the transducer.

46. (New) The surface and cordless transducer system of claim 40 wherein the pulse width encoded signal transmits a clock to the transducer.

47. (New) The surface and cordless transducer system of claim 40 wherein the pulse width encoded signal transmits binary "1"s and "0"s to the transducer.

48. (New) The surface and cordless transducer system of claim 40 wherein the resonant circuit is further configured to transmit the position signal to the position resolving grid.

49. (New) The surface and cordless transducer system of claim 40 wherein the control logic of the transducer is further configured to vary the length of the position signal from the transducer.

50. (New) The surface and cordless transducer system of claim 40 wherein the control logic of the transducer is further configured to vary the length of the position signal from the transducer to transmit pressure data to the position resolving grid.